Teaching Topics for High School – Human Factors in Space

Psychology:

How the Human Brain Works?
- Store and process information
- Learning Models for Stress Situations
- Training and Practice Models
- Workstation Design
- Environmental Design for ICE

*Reaction Times in Microgravity (*µgravity*)*
Psychological Factors in ICE
Motivational Models in ICE
Workload Design Considerations

Sociology:

Hierarchical and Personal Interaction Models in ICE
Group Dynamic Models in ICE

Human Physiology:

Earth Physiology vs. Space Physiology: All human systems
- Neuro-vestibular
- Musculo-skeletal
- Cardio-Vascular
- Cardio-Pulmonary
- Renal Endocrine
- Blood/Immune
- Sensory and Balance

Human Performance Capabilities
Motor Skills and Reaction Time Considerations

Science, Math, and Engineering:

Designing for the Microgravity Environment
- Trigonometry of Workstation Design
- Local Vertical Design Principles
- Ergonomics and Mean Percentile/Deviation
- The Physics of Closed Systems in µgravity
  - Fluid Dynamics and Flow
  - Pressure/Gas Laws
- Kinesthesic and Strength Design Considerations
  - Force and Push-off velocity of American Males in µgravity
  - Moments of Inertia, Center of Mass

Biomechanics: Reach, Posture, Body Surface Area and Volume Considerations